Environmental Protection Agency

§ 91.321 NDIR analyzer calibration.

(a) Detector optimization. If necessary, follow the manufacturer's instructions for initial start-up and basic operating adjustments.

(b) Calibration curve. Develop a calibration curve for each range used as follows:

1. Zero the analyzer.
2. Span the analyzer to give a response of approximately 90 percent of full-scale chart deflection.
3. Recheck the zero response. If it has changed more than 0.5 percent of full scale, repeat the steps given in paragraphs (b)(1) and (b)(2) of this section.

4. Record the response of calibration gases having nominal concentrations between 10 and 90 percent of full-scale concentration. A minimum of six evenly spaced points covering at least 80 percent of the 10 to 90 percent range (64 percent) is required (see following table).

<table>
<thead>
<tr>
<th>Example calibration points (percent)</th>
<th>Acceptable for calibration?</th>
</tr>
</thead>
<tbody>
<tr>
<td>10, 20, 30, 40, 50, 60, 70</td>
<td>Yes, though equally spaced and entire range covered, a minimum of six points is needed.</td>
</tr>
<tr>
<td>10, 20, 30, 40, 50, 60, 70, 80, 90</td>
<td>Yes, range covered is 50 percent, not 64 percent.</td>
</tr>
<tr>
<td>10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85</td>
<td>No, though equally spaced and entire range covered, a minimum of six points is needed.</td>
</tr>
</tbody>
</table>

(5) Activate the ozonator to generate enough ozone to bring the NO concentration down to about 20 percent (minimum 10 percent) of the calibration concentration given in paragraph (a)(2) of this section. Record the indicated concentration as "d".

NOTE: If, with the analyzer in the most common range the NOX converter cannot give a reduction from 80 percent to 20 percent, then use the highest range which will give the reduction.

(6) Switch the NO analyzer to the NOX mode, which means that the gas mixture (consisting of NO, NO2, O2 and N2) now passes through the converter. Record the indicated concentration as "a".

(7) Deactivate the ozonator. The mixture of gases described in paragraph (a)(6) of this section passes through the converter into the detector. Record the indicated concentration as "b".

(8) Switched to NO mode with the ozonator deactivated, the flow of oxygen or synthetic air is also shut off. The NOX reading of the analyzer may not deviate by more than ±5 percent of the theoretical value of the figure given in paragraph (a)(2) of this section.

(b) The initial and periodic interference, system check, and calibration test procedures specified in 40 CFR part 1065, subparts C and D, may be used in lieu of the procedures in this section.